

Application No. 10/613,268
Reply to Office Action of July 6, 2005

Remarks:

1. Claims 1 through 46 were originally presented. New claims 47 through 53 have been added. Claims 35, 40, and 42 have been canceled without prejudice. Claims 1 through 34, 36 through 39, 41, and 43 through 53 remain pending in this case. Claims 1, 19, 20, 22, 25, 29, 31, 32, 36, 37, 41, 43, 44, 45, and 46 have been amended in this Response and are presented for further consideration, as amended, in view of the remarks set forth below. The Examiner has indicated that claims 11-13, 15, 16, 22-24, 31-33, 35, 36, and 42-44 would be allowable if rewritten in independent form to include all of the characteristics of the base claim and any intervening claims.

2. Claims 20, 21, 40, and 41 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 26 of co-pending Application Serial No. 10/613,375. Since they were not further rejected in view of the cited prior art, the Applicant assumes that claims 20, 21, 40, and 41 are otherwise allowable if rewritten in independent form. The Applicant respectfully submits that a terminal disclaimer should not be necessary in this case, since the instant application was filed on the same day (July 3, 2003) as co-pending Application Serial No. 10/613,375. However, the Applicant is willing to file a terminal disclaimer if the Examiner should so desire.

3. New claims 47 through 51 are presented for consideration in this paper. New independent claim 47 includes each of the elements of original claim 1 and further recites "the at least one matching layer including a plurality of openings formed in one face thereof, the openings being filled with an epoxy resin" from allowable claims 11 and 15. Claim 47 is supported by original claims 1, 11, and 15 such that no new search is required and no new matter has been added. Applicant respectfully submits that new claim 47 is allowable since an indication of allowability was given to original claims 11 and 15. New claims 48 through 51 depend from claim 47 and are supported by original claims 10, 12, 14, and 16, respectively. Applicant respectfully submits that new claims 48 through 51 are also allowable since they depend from allowable claim 47.

Application No. 10/613,268
Reply to Office Action of July 6, 2005

4. Claim 29 stands rejected under 35 U.S.C. 102(b) as being anticipated by *Kaarmann* (U.S. Patent 4,686,409) or *Thurn* (U.S. Patent 6,107,722).

5. Claim 29 has been amended to recite: "the ceramic work piece including a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin". Amended claim 29 is supported by original claims 29, 31, and 35 such that no new search is required and no new matter has been added. Applicant respectfully submits that amended claim 29 is allowable since an indication of allowability was given to original claims 31 and 35. Applicant further submits that pending dependent claims 30 through 34 and 36 are also allowable since they depend from allowable claim 29.

6. Claim 37 stands rejected under 35 U.S.C. 102(b) as being anticipated by *Inoue* (U.S. Patent 4,705,981) or *Birth* (U.S. Patent 6,897,601).

7. Claim 37 has been amended to recite "the barrier layer being selected from the group consisting of (i) a corrugated barrier layer and (ii) a composite barrier layer including a metallic work piece having a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin." Amended claim 37 is supported by original claims 37, 40, and 42 such that no new search is required and no new matter has been added. Applicant respectfully submits that amended claim 37 is allowable since an indication of allowability was given to original claims 40 and 42. Applicant further submits that pending dependent claims 38, 39, 41, 43, and 44 are also allowable since they depend from allowable claim 37.

8. Independent claims 1 and 46 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Oakley* (U.S. Patent 5,844,349). The examiner states: "note figure 3 and column 8, lines 22-30, which shows a piezoelectric transducer element having piezoelements, two impedance matching layers #48, #49 and an aluminum barrier layer #53."

Application No. 10/613,268
Reply to Office Action of July 6, 2005

9. Claims 1 and 46 have been amended to recite an acoustic sensor comprising “an impact barrier layer”. Support for these amendments may be found, for example, in paragraphs 56 through 59 of the original specification.

10. Applicant respectfully submits that independent claims 1 and 46, as amended, now distinguish patentably over *Oakley* (U.S. Patent 5,844,349) alone or in combination with any other reference of record in the application. Nothing in *Oakley* teaches or in any way suggests an acoustic sensor comprising an impact barrier layer. On the contrary, *Oakley* teaches a steam-autoclavable sensor including “a moisture barrier 53 of aluminum foil” (column 8, line 25, emphasis added). Applicant, therefore, respectfully submits that independent claims 1 and 45 are allowable. It follows that dependent claims 2 through 28 must also be allowable, since they depend from allowable claim 1.

11. Independent claim 45 stands rejected under U.S.C. 103(a) as being unpatentable over *Dowell* (U.S. Patent 5,899,958) in view of *Oakley* (U.S. Patent 5,844,349). In particular the Examiner states: “Dowell teaches a tool that incorporates a piezoelectric transducer in its cylindrical housing.” The Examiner further states: “it would have been obvious to provide Dowell with impedance matching and barrier layers” disclosed by *Oakley*.

12. Applicant respectfully submits that the Examiner has failed to make a *prima facie* case of obviousness. As the Federal Circuit has held, “to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant.” *In re Kotzab*, 271 F.3d 1365, 1370 (Fed. Cir. 2000). The Examiner’s statement that “it would have been obvious to provide Dowell with impedance matching and barrier layers” is merely conclusory and does not support the combination of *Dowell* and *Oakley*.

13. Nevertheless, Applicant has amended independent claim 45 to recite an acoustic sensor comprising “an impact barrier layer”. Applicant submits that independent claim 45, as amended, distinguishes patentably over the cited references for the reasons set forth above in paragraphs 10 and 12.

Application No. 10/613,268
Reply to Office Action of July 6, 2005

14. New claim 52 is presented for consideration in this paper. New claim 52 depends from amended claim 45 and recites: "wherein the at least one matching layer includes a plurality of openings formed in one face thereof, the openings being filled with an epoxy resin." New claim 52 is supported by original claims 11, 15, 31, and 35 such that no new search is required and no new matter has been added. Applicant respectfully submits that new claim 52 is allowable since an indication of allowability was given to original claims 11, 15, 31, and 35. Moreover, new claim 52 is further allowable since it depends from allowable claim 45.

15. New claim 53 is presented for consideration in this paper. New claim 53 depends from amended claim 45 and recites: "wherein the barrier layer is selected from the group consisting of (i) a corrugated barrier layer and (ii) a composite barrier layer including a metallic work piece having a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin." New claim 53 is supported by original claims 20, 22, 40, and 42 such that no new search is required and no new matter has been added. Applicant respectfully submits that new claim 53 is allowable since an indication of allowability was given to original claims 20, 22, 40, and 42. Moreover, new claim 53 is further allowable since it depends from allowable claim 45.

16. Applicant therefore respectfully submits that independent claims 1, 29, 37, 45, 46, and 47, as amended and added, are patentable over the art of record. Independent claims 1, 25, and 28 being allowable, it follows *a fortiori* that dependent claims 2 through 28, 30 through 34, 36, 38, 39, 41, 43, 44, and 48 through 53 must also be allowable, since these dependent claims carry with them all the elements of the independent claims to which they ultimately refer.

Application No. 10/613,268
Reply to Office Action of July 6, 2005

Applicant believes that in view of the foregoing remarks, pending claims 1 through 34, 36 through 39, 41, and 43 through 53 are allowable, and that this application is now in full condition for allowance, which action Applicant earnestly solicits. Should the Examiner have any questions, or believe that a telephone interview may expedite the further examination of this application, the Examiner is requested to contact the undersigned at the telephone number shown below.

Respectfully submitted,

Date: 9/16/05 _____



Mark A. Thurmon
Registry No. 39,858
Pathfinder Energy Services, Inc.
15151 Sommermeyer Street
Houston, Texas 77041
(713) 706-1232 Telephone
(713) 996-4164 Facsimile
- Applicant -